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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,403	09/24/2003	Viacheslav A. Petrov	UC0315 US NA	5058
23906 7590 04/01/2008 E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1122B 4417 LANCASTER PIKE WILMINGTON, DE 19805				
EXAMINER				
VDAYAKUMAR, KALLAMBELLA M				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
04/01/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

Office Action Summary

Application No.

10/669,403

Applicant(s)

PETROV ET AL.

Examiner

KALLAMBELLA VIJAYAKUMAR

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15 and 22-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15 and 22-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/28/2008 has been entered.

The amendment to claims filed 01/30/2008 has been entered. Claims 15, 22 and 23 were amended. Claims 15 and 22-32 as amended are currently pending with the application.

Applicants arguments and the amendment filed 01/30/2008 overcome the prior art by Yamada et al (US 6,046,348), rejection of claims 23 and 30-32 over Babb et al (US 5,730,922) and the objection to claims cited in the last office action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim-Analysis:

The examiner makes of record that instant claims 15, 22 and 23 recite a broad range of components <mixtures of "such materials"> followed by a series of narrow ranges <semiconductor/electrically active

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materials, photoactive materials>. For examination purposes, the examiner asserts that the narrow ranges recited in instant claims 15, 22 and 23 are merely exemplary ranges, and thus, the prior art will be applied against the broadest ranges recited in instant claims 15, 22 and 23. Furthermore, the examiner suggests that applicant should delete the narrow ranges from instant claims 15, 22 and 23, and add new dependent claims that recite the narrow ranges recited in instant claims 15, 22 and 23.

The use of phrase "for depositing an active material on to a surface" in the claims have not been treated with patentability. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

1. Claims 15 and 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Babb et al (US 5,730,922).

Babb teaches a coating composition comprising:

- (a). Monomers/prepolymers of the structure $CF_2=CF-X-R-(X-CF_2)_m$, wherein m=an integer from 1-3; X= O-atom or a perfluoroalkylene ether; and R=aromatic and substituted aromatic, with C1-C12 atoms and a molecular weight from 14-20,000; (Cl-4, Ln 51- Cl-5, Ln 5, 30; Cl-5, Ln 45-Cl-6, Ln 17),
- (b). graphite <electron emitter/conductive>, copper oxide, potassium titanate, titanium dioxide, barium ferrite or iron oxide, metal particles for optical media, conductive particles of metal or carbon <semiconductor/conductor/photoactive material>, (Cl-13, Ln 28, 30-36; Cl-15, Ln 30-33) and
- (c). a solvent (Cl-15, Ln 12-23)

The substituents R_m and X_n in the instant claims are not an essential component of the claims because when $m=0$ and $n=0$, and a range of $m+n \leq 5$ includes values ranging from 0-5, and language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation (MPEP 2106 [R6]).The

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composition was applied to a surface by either solution deposition or by Langmuir-Blodgett technique i.e. coating composition (Cl-15, Ln 40-43; Cl-14, Ln 30-44).

With regard to the properties in the claims the prior art composition is either same or substantially same as that claimed by the applicants, and will possess same characteristics because "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). All the limitations of the instant claims are met.

The reference is anticipatory.

2. Claims 15, 23-26 and 30-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Poetsch et al (US 5,196,140).

Poetsch et al teach an electro-optical liquid crystal display (LCD) element comprising a dielectric comprising a perfluoro compound such as 4-methyl-1-(1,1,2,2-tetrafluoroethoxy)-benzene and at least two liquid-crystalline components (active materials) (Abstract, Cl- 17, Ln 38-48). The prior art further teaches the perfluoro compounds with the formula R1-A2-R2 (Formula Ib), wherein R1 and R2 are C2-C12 alkyl or alkoxy groups (Cl-6, Ln 37-41), and at least one of R1 and R2 being a C1-C15 perfluoro- alkyl (Cl-7, Ln 17-30) and A2 being a phenyl group in the composition (Cl-6, Ln 42-45) (see entire disclosure, in particular Cl-3, Ln 23-66; Cl-6, Ln 37 to Cl-8, Ln-68, Cl-9, Ln 33-41 and Cl-17, Ln 38-48), and its advantages with clear point of the liquid crystal display without the need of viscosity modifiers (Cl-2, Ln 16-27; Cl-16, Ln 30-52). The substituents Rm and Xn in the instant claims are not essential components of the claims because when m=0 and n=0, and a range of m+n ≤ 5 includes values ranging from 0-5, and language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation (MPEP 2106 [R6]). The prior art further teaches coating the composition by conventional methods and a as rule the components are dissolved in one another (Cl-16, Ln 31-33) that meets the limitation of coating solution per the claims.

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With regard to the properties in the claims the prior art composition is either similar to that claimed by the applicants, and will possess same characteristics. All the limitations of the instant claims are met.

The reference is anticipatory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 15 and 24-26 are rejected under 35 U.S.C. 103(a) as being obvious over Babb et al (US 5,730,922).

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Babb teaches a coating composition comprising:

- (a). Monomers/prepolymers of the structure $\text{CF}_2=\text{CF}-\text{X}-\text{R}-(\text{X}-\text{CF}=\text{CF}_2)_m$, wherein m =an integer from 1-3; X = O-atom or a perfluoroalkylene ether; and R =aromatic and substituted aromatic, with C1-C12 atoms and a molecular weight from 14-20,000; (Cl-4, Ln 51- Cl-5, Ln 5, 30; Cl-5, Ln 45-Cl-6, Ln 17),
- (b). graphite <electron emitter/conductive>, copper oxide, potassium titanate, titanium dioxide, barium ferrite or iron oxide, metal particles for optical media, conductive particles of metal or carbon <semiconductor/conductor/active material>, (Cl-13, Ln 28, 30-36; Cl-15, Ln 30-33) and
- (c). a solvent (Cl-15, Ln 12-23)

The substituents R_m and X_n in the instant claims are not an essential component of the claims because when $m=0$ and $n=0$, and a range of $m+n \leq 5$ includes values ranging from 0-5, and language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation (MPEP 2106 [R6]). The composition was applied to a surface by either solution deposition or by Langmuir-Blodgett technique (Cl-15, Ln 40-43; Cl-14, Ln 30-44).

Babb fails to teach an example containing the components per claim 15.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the claimed active materials with the perfluoro compounds of Babb et al for use in coating compositions, because Babb teaches tailoring them for specific applications including optical waveguides (Cl-6, Ln 61-62), photovoltaics (Cl-16, Ln 15) and electronic components (Cl-17, Ln 19-68).

With regard to the properties in the claims the prior art composition is similar to that claimed by the applicants, and expected to possess similar characteristics.

- 2. Claims 15 and 22-32 are rejected under 35 U.S.C. 103(a) as being obvious over Poetsch et al (US 5,196,140).

Poetsch et al teach an electro-optical liquid crystal display (LCD) element comprising a dielectric comprising a perfluoro compound such as 4-methyl-(1,1,2,2-tetrafluoroethoxy)-benzene and at least two liquid-crystalline components (active material) (Abstract, Cl- 17, Ln 38-48). The prior art further teaches

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the perfluoro compounds with the formula R1-A2-R2 (Formula Ib), wherein R1 and R2 are C2-C12 alkyl or alkoxy groups (Cl-6, Ln 37-41), and at least one of R1 and R2 being a C1-C15 perfluoro-alkyl (Cl-7, Ln 17-30) and A2 being a phenyl group in the composition (Cl-6, Ln 42-45) (see entire disclosure, in particular Cl-3, Ln 23-66; Cl-6, Ln 37 to Cl-8, Ln-68, Cl-9, Ln 33-41 and Cl-17, Ln 38-48), and its advantages with clear point of the liquid crystal display without the need of viscosity modifiers (Cl-2, Ln 16-27; Cl-16, Ln 30-52). The substituents Rm and Xn in the formulas of in the instant claims are optional components wherein m=0 and n=0, and further a range of $m+n \leq 5$ includes a values ranging from 0-5, and Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation (MPEP 2106 [R6]). The prior art further teaches coating the composition by conventional methods and as a rule the components are dissolved in one another (Cl-16, Ln 31-33) that meets the limitation of coating solution per the claims.

The prior art fails to disclose an example of a coating solution per claims 15 and 23, and the specific perfluoro compounds per claim 22.

It would have been obvious to a person of ordinary skilled in the art to coat an electro-optical liquid crystal element at the time of the disclosure of the invention with the instant claimed perfluoro compounds combined with active components to benefit from better functionality of the LCD element with improved clear point, because the prior art teaches that the LCD dielectrics could be modified to suit the application needs by altering dielectric anisotropy or viscosity (Cl-2, Ln -20-39).

With regard to claim-22, Poetsch et al teach the compounds in Example-1 such as 4-methyl-(1,1,2,2-tetrafluoroethoxy)-benzene and these compounds have close structural similarity and similar utility as the compounds of claim 22 in liquid crystalline compositions, and the compounds of claim 22 are prima facie obvious over the compounds disclosed by Poetsch et al, since Poetsch et al. teach that their liquid-crystalline dielectrics can be modified by suitable additives in a such a way that they can be used in all of the disclosed types of liquid crystal display elements (Cl-16, Ln 35-38).

With regard to the properties in the claims the prior art composition is either similar to that claimed by the applicants, and expected to possess similar characteristics.

Response to Arguments

Applicant's arguments filed 01/30/2008 have been fully considered but they are not persuasive.

In response to the argument that Babb does not contain semiconductive or photoactive materials, Barium ferrite and iron oxide are magnetic particles, and not semiconductive or phototoactive materials wherein titania also is not semiconductive or photoactive (Res, Pg-8, Para 1-2) because, iron oxide (See Qian et al, J. Nanoparticle Res., 2000, 2, 191-198; Abstract) and Titanium dioxide (See, Bai et al, J. Matl. Chem; 2001, 11, 3099-3102; Abstract) are well known photoactive semiconductors.

See Babb et al, Cl-13,

**cements; mineral fibrils such as potassium titanate, titanium
dioxide or boehmite; boehmite in other forms. asbestos and**

Further, barium ferrite is also a well known semiconductor (See, Huges, US 3,783,499, Cl-4, Ln 5-7). With regards to the rejection of Clm-23 and its dependents over Babb et al is persuasive (Res, Pg-8, Para 3-4) and the rejection of these claims over Babb et al are withdrawn.

For the reasons set forth above, applicants fail to patentably distinguish their composition over the prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KALLAMBELLA VIJAYAKUMAR whose telephone number is (571)272-1324. The examiner can normally be reached on M-F 07-3.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 5712721358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/
March 25, 2008.

/Stanley Silverman/
Supervisory Patent Examiner, Art Unit 1793